

# MINIATURE ROTARY COMPRESSOR

New Enabling Technology for Compact Cooling Applications

- Cooling capacity up to 500 W
- Low vibration pump & motor design



**THERMAL  
MANAGEMENT**

## Miniature Rotary Compressor DC24V



### ■ New Enabling Technology for compact Cooling Applications: Miniature Rotary Compressor

Compressors are a key component to refrigeration products, found in common household appliances like refrigerators and air conditioners. Compressors are the “heart” of such appliances, comparable to a car engine or even the human heart.

AMS Technologies now presents a lighter, more compact and more efficient Mini Rotary Compressor.

### ■ New possibilities with miniature compressors

The Mini Rotary Compressor with a cooling capacity of up to 500 W is the result of a breakthrough in compressor technology that could be utilized in many Thermal Management applications from compact recirculating chillers, cabinet coolers, direct cooling of electronic components, white goods and mobile refrigeration.

Numerous refrigerated applications can benefit from the size and weight advantages of the new brushless direct current (BLDC) Miniature Rotary Compressor. Some of the relevant applications are listed below:

- Medical Applications
- Analytical Equipment
- Laser Cooling
- Reagents Cooling
- Portable Refrigerator



The product developers of Samsung have reduced the weight and the size of the rotary compressor to about the size of a 250ml soda can, which is one-fourth of the size of a conventional compressor.

### ■ Lightweight compressor with high efficiency, low vibration and low noise

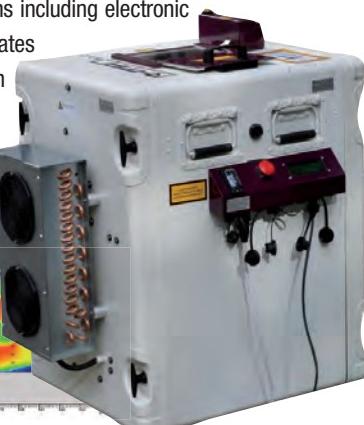
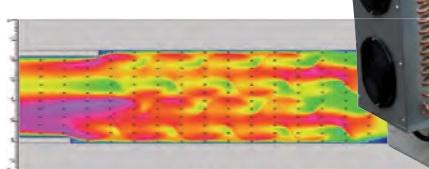
The new Mini Rotary Compressor combines high efficiency motor design technology, compressing technology that minimizes the loss of refrigerant, nano-manufacturing technology and control technology, all of which has resulted in a 35% increase in efficiency while reducing the vibration up to 89% due to its twin pump design.

The BLDC Compressor has a noise of less than 40 db(A). This was possible through a ‘Twin Pump’ that features two press chambers that maintains a constant motor speed regardless of the load and ‘Torque Control’ technology.

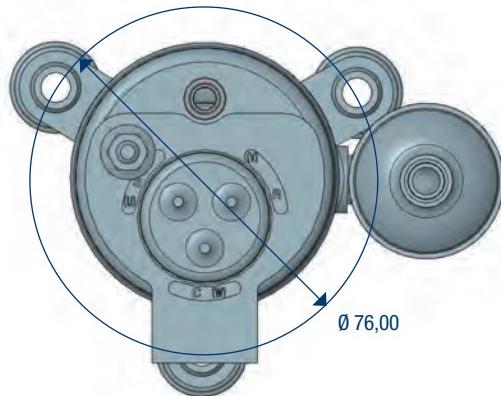
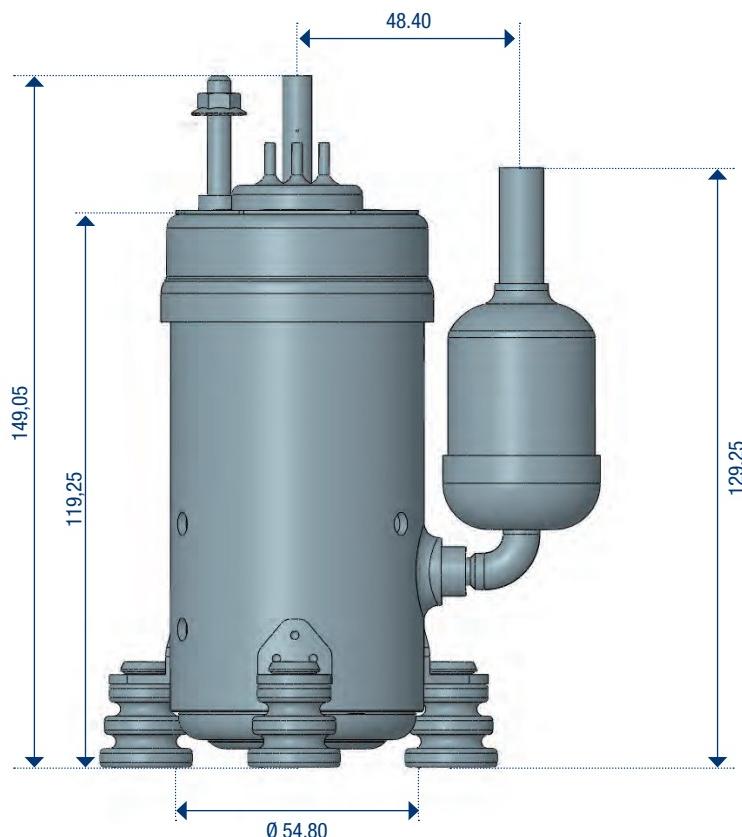
### ■ Customizing Solutions with Optical, Power Technologies and Thermal Management

AMS Technologies provides customers with the necessary expertise to integrate the new mini compressor into custom solutions. From CFD simulations over the dimensioning of the thermal components all the way to complete turn key designs including electronic controllers, AMS Technologies accelerates customer's project design cycles with thermal competence.

*Image right: outdoor mini-compressor cabinet cooler for sensitive LiDAR equipment. Image below: water flow field of passively cooled laser diode*



## ■ Compressor Dimensions in mm



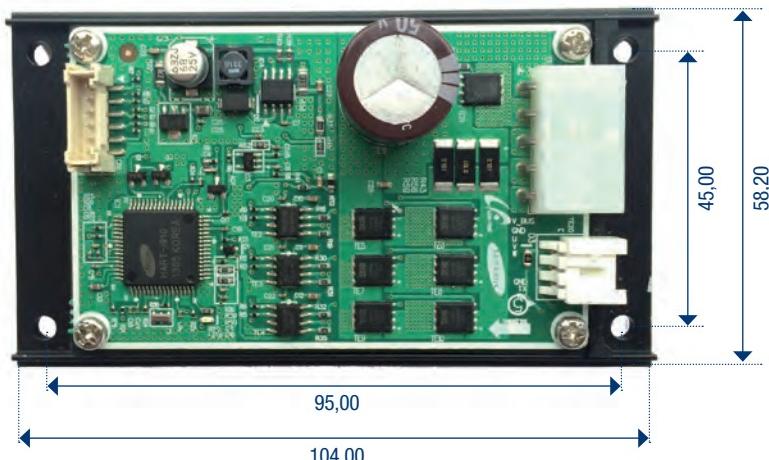
### Miniature Rotary Compressor BLDC, DC24V

Conditions	HBP*	LBP*
Cooling capacity	500W@5400 RPM	125W@5400 RPM
Refrigerant	R-134	
Noise	Less than 40 dB(A)	
Vibration	Less than 20 µm	
Voltage Power Supply	3Ph BLDC, DC 24V (Driver input)	
Weight	1.2kg (2.6 lb)	

\*HBP: Evap. Temp. 7.2°C / Cond. Temp. 54.4°C / Superheated to 35°C  
Sub-Cooled to 46.1°C / Ambient Temp. 35°C

\*LBP: Evap. Temp. 23.3°C / Cond. Temp. 54.4°C / Superheated to 32.2°C  
Sub-Cooled to 32.2°C / Ambient Temp. 32.2°C

## ■ Controller Dimensions in mm



### Controller DC Model

Rated Voltage	24V
Max Current	12A
Max Output	250W
Speed Command	Square wave PWM Signal input of 50% duty 0 - 40 Hz = OFF 40 Hz : 1,200 rpm 180 Hz : 5,400 rpm

The information and data included in this documentation is provided without guarantee and is subject to change at any time without prior notification.



[www.amstechnologies-webshop.com/mini-compressor](http://www.amstechnologies-webshop.com/mini-compressor)

High Efficiency Miniature Rotary Compressor



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